Author Index

Aust,	K.	T.,	1	57
Austi	n. I	M. V	٧	85

Bhattacharya, R. S., 139 Boas, M., 77 Budhani, R. C., 165 Bunshah, R. F., 165

Casalot, A., L9 Charsely, P., 101 Chaturvedi, M. C., 59 Collot, J., L5 Combres, Y., L5

Dal Maschio, R., L25 Demsetz, L. A., 33 Deshpandey, C. V., 165 Doerr, H. J., 165

Ficalora, P. J., 43

Gibson, L. J., 33 Gnanam, F. D., L1 Goswami, N. N., 147 Gupta, H. C., 187

Han, Y., 59

Kelly, A., 1 Kim, S. A., 85 Korhonen, A. S., L19 Kunz, L., 67 Kurzydłowski, K. J., 115

Lal, K., 147 Ledbetter, H. M., 85 Lukáš, P., 67

Mackay, R. A., 127 Malhotra, J., 187 Me-Bar, Y., 77 Molarius, J. M., L19 Mughrabi, H., 15

Nathal, M. V., 127

Paleniappan, L., L1 Prakashi, S., 165

Rai, A. K., 139 Ramasamy, P., L1 Rani, N., 187 Rodríguez, M. V., 43 Rosenberg, Z., 77

Savva, G., 157 Smith, E., 53 Sorarù, G., L25

Tangri, K., 115 Tripathi, B. B., 187

Vacquier, G., L9 Varin, R. A., 115

Waseda, Y., 157 Wetherhold, R. C., L13 White, J. D. M., 101 Whittenberger, J. D., 91 Wriekat, A., 181



Subject Index

Alloy

the torsion behaviour of stir-cast Cu-11wt.%Sn alloy at room temperature, L5

Aluminium

effects of pretreatments on the oxidation behaviour of Ni-Co-Cr-Al-Y coatings, 165 slow plastic flow properties of B2 Co-Fe-Al and Co-Ni-Al between 1100 and 1400K, 91

spall studies on Ti-6Al-4V, 77 Antimony sulphoiodide

electrical conductivity of antimony sulphoiodide,

Auger electron spectroscopy

superficial characterization of NbSe₂ single crystals: an Auger electron spectroscopy study, L9

Boron

corrosion of Fe-Cr-Si-B metallic glass wires, 157

Carbon

carbon and nitrogen effects on the elastic constants of a stainless steel at 4K, 85

Chromium

corrosion of Fe-Cr-Si-B metallic glass wires, 157 effects of pretreatments on the oxidation behaviour of Ni-Co-Cr-Al-Y coatings, 165 sputter-deposited and ion-mixed Ni-Ti and Ni-Cr

thin films, 139

Coatings

effects of pretreatments on the oxidation behaviour of Ni-Co-Cr-Al-Y coatings, 165

Cobali

effects of pretreatments on the oxidation behaviour of Ni-Co-Cr-Al-Y coatings, 165

slow plastic flow properties of B2 Co-Fe-Al and Co-Ni-Al between 1100 and 1400K, 91

Conductivity

electrical conductivity of antimony sulphoiodide, L1

Copper

deformation during fatigue near surface identations and pits in copper crystals, 101

effect of grain size on the high cycle fatigue behaviour of polycrystalline copper, 67

the torsion behaviour of stir-cast Cu-11wt.%Sn alloy at room temperature, L5

Cores

minimum weight design for stiffness in sandwich plates with rigid foam cores, 33

Crack

the effective fracture energy associated with cleavage crack growth in B.C.C. iron, 53

Creep

a study of back stress during creep deformation of a superalloy Inconel 718, 59

Crystals

superficial characterization of NbSe₂ single crystals: an Auger electron spectroscopy study, L9

Deformation

a study of back stress during creep deformation of a superalloy Inconel 718, 59

deformation during fatigue near surface indentations and pits in copper crystals, 101

Dislocation

a two-parameter description of heterogeneous dislocation distributions in deformed metal crystals, 15

analytical treatment of grain boundary sources for dislocations, 115

the mechanism of a hydrogen-dislocation interaction in B.C.C. metals: Embrittlement and dislocation motion, 43

Ductility

ductility of TiN-coated high speed steel, L19

Elastic

carbon and nitrogen effects on the elastic constants of a stainless steel at 4K, 85

Embrittlement

the mechanism of a hydrogen-dislocation interaction in B.C.C. metals: Embrittlement and dislocation motion, 43

Fatigue

deformation during fatigue near surface identations and pits in copper crystals, 101

effect of grain size on the high cycle fatigue behaviour of polycrystalline copper, 67

influence of surface treatments on the dynamic fatigue of soda-lime glass with identation flaws, L25

Films

sputter-deposited and ion-mixed Ni-Ti and Ni-Cr thin films, 139

Flaws

influence of surface treatments on the dynamic fatigue of soda-lime glass with identation flaws, L25

Fracture

the effective fracture energy associated with cleavage crack growth in B.C.C. iron, 53

Grain boundary

analytical treatment of grain boundary sources for dislocations, 115

Graphite

phonons in graphite and LiC₆, 187

Hydrogen-dislocation interaction

the mechanism of a hydrogen-dislocation inter-

action in B.C.C. metals: Embrittlement and dislocation motion, 43

Iron

corrosion of Fe-Cr-Si-B metallic glass wires, 157 slow plastic flow properties of B2 Co-Fe-Al and Co-Ni-Al between 1100 and 1400K, 91 the effective fracture energy associated with cleavage crack growth in B.C.C. iron, 53

Lamellar $\gamma \cdot \gamma'$ structures the stability of lamellar $\gamma \cdot \gamma'$ structures, 127 Lithium carbide

phonons in graphite and LiC₆, 187

Materials science

an outline of trends in materials science and processing, 1

Metals

the mechanism of a hydrogen-dislocation interaction in B.C.C. metals: Embrittlement and dislocation motion, 43

surface analysis of light elements at metal surfaces using (p, γ) reactions, 181

Metal Crystals

a two-parameter description of heterogeneous dislocation distributions in deformed metal crystals, 15

Metallic glass wires corrosion of Fe-Cr-Si-B metallic glass wires, 157

Nicke

effects of pretreatments on the oxidation behaviour of Ni-Co-Cr-Al-Y coatings, 165 slow plastic flow properties of B2 Co-Fe-Al and

Co-Ni-Al between 1100 and 1400K, 91 sputter-deposited and ion-mixed Ni-Ti and Ni-Cr thin films, 139

Niobium

superficial characterization of NbSe₂ single crystals: an Auger electron spectroscopy study, L9 Nitrogen

carbon and nitrogen effects on the elastic constants of a stainless steel at 4K, 85 ductility of TiN-coated high speed steel, L19

 (p, γ) reactions

surface analysis of light elements at metal surfaces using (p, γ) reactions, 181

Phonons

phonons in graphite and LiC₆, 187

Plastic

slow plastic flow properties of B2 Co-Fe-Al and Co-Ni-Al between 1100 and 1400K, 91

Sandwich plates

minimum weight design for stiffness in sandwich plates with rigid foam cores, 33

Selenium

superficial characterization of NbSe₂ single crystals: an Auger electron spectroscopy study, L9 Silicon

corrosion of Fe-Cr-Si-B metallic glass wires, 157 high resolution X-ray diffraction study of defect structures produced by high D.C. electric fields in silicon single crystals, 147

Soda-lime glass

influence of surface treatments on the dynamic fatigue of soda-lime glass with indentation flaws, L25

Spall

spall studies on Ti-6Al-4V, 77

Stainless steel

carbon and nitrogen effects on the elastic constants of a stainless steel at 4K, 85

Steel

ductility of TiN-coated high speed steel, L19

Stress

a study of back stress during creep deformation of a superalloy Inconel 718, 59

Superalloy

a study of back stress during creep deformation of a superalloy Inconel 718, 59

deformation of surface cladding and matrix of tungsten-fiber-reinforced superalloy under thermomechanical loading, L13

Thermomechanical loading

deformation of surface cladding and matrix of tungsten-fiber-reinforced superalloy under thermomechanical loading, L13

Tin

the torsion behaviour of stir-cast Cu-11wt.%Sn alloy at room temperature, L5

Titanium

ductility of TiN-coated high speed steel, L19 spall studies on Ti-6Al-4V, 77 sputter-deposited and ion-mixed Ni-Ti and Ni-Cr thin films, 139

Torsion

the torsion behaviour of stir-cast Cu-11wt.%Sn alloy at room temperature, L5

Tungsten

deformation of surface cladding and matrix of tungsten-fiber-reinforced superalloy under thermomechanical loading, L13

Vanadium

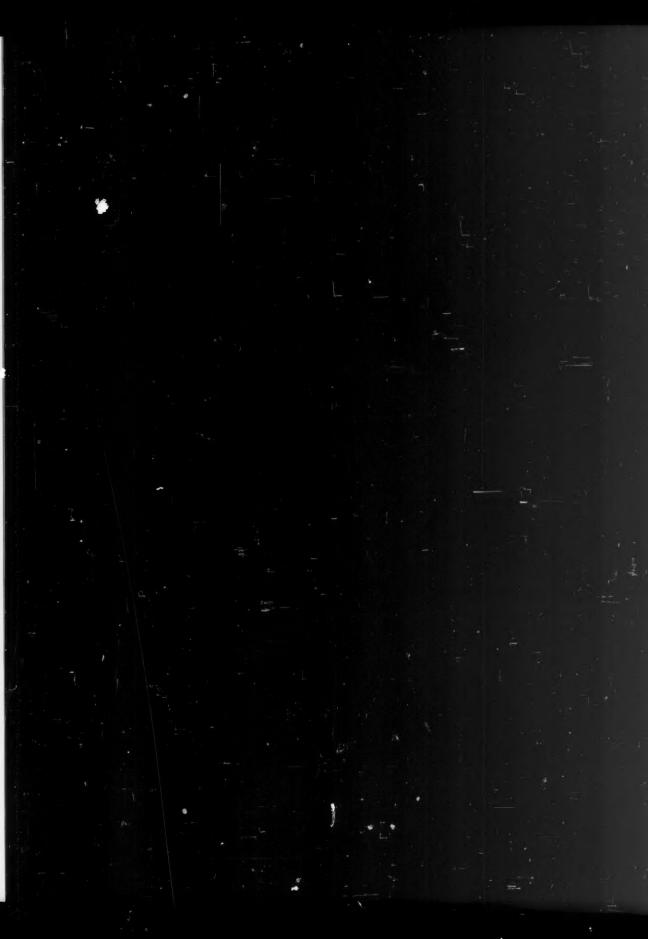
spall studies on Ti-6Al-4V, 77

X-ray diffraction

high resolution X-ray diffraction study of defect structures produced by high D.C. electric fields in silicon single crystals, 147

Yttrium

effects of pretreatments on the oxidation behaviour of Ni-Co-Cr-Al-Y coatings, 165





Submission of papers

Manuscripts for the main part of the journal should be submitted to the Editor-in-Chief, Professor H. Herman, or for authors in Japan to Professor H. Kimura:

Professor Herbert Herman

Department of Materials Science and Engineering State University of New York at Stony Brook Long Island, NY 11794, U.S.A. Professor Hiroshi Kimura Research Institute for Iron, Steel and Other Metals Tohoku University Sendai, Japan

Manuscripts for the Letters Section should be submitted as follows:

For authors in Europe except Great Britain

Professor Haël Mughrabi Institut für Werkstoffwissenschaften Universität Erlangen-Nürnberg Martensstrasse 5, D-8520 Erlangen, F.R.G.

For authors in North and South America, Great Britain and the rest of the world

Professor Herbert Herman
Department of Materials Science and Engineering
State University of New York at Stony Brook
Long Island, NY 11794, U.S.A.

For authors in Japan

Professor Hiroshi Kimura Research Institute for Iron, Steel and Other Metals Tohoku University Sendai, Japan

Manuscripts

Three copies should be submitted to the Editor, in double-spaced typing on pages of uniform size and with wide margins (Letters should not exceed 2000 words). All tables and illustrations should bear a title or legend.

An abstract should accompany reviews, original papers and Letters. It should present (preferably in 100-150 words; 50 words or less for Letters) a brief and factual account of the contents and conclusions of the paper, and an indication of the relevance of new material.

References should be indicated by numerals in square brackets, introduced consecutively and appropriately in the text. References must be listed on separate sheet(s) at the end of the paper. Every reference appearing in the text should be quoted in the reference list, and vice versa.

One set of line drawings should be in a form suitable for reproduction, drawn in Indian ink on drawing or tracing paper (letter height, 3-5 mm). Photographs should be high contrast glossy black-and-white prints; duplicates of micrographs should be provided wherever possible to facilitate the refereeing process. Where magnifications are concerned, it is preferable to indicate the scale by means of a ruled scale bar on the photograph. Legends to illustrations should be typed in sequence on a separate page.

Authors must express all quantities in SI units, with other units in parentheses if desired.

CONTENTS (continued)

Deformation of surface cladding and matrix of tungsten-fiber-reinforced superalloy under thermomechanical loading	L13
Ductility of TiN-coated high speed steel	L19
Influence of surface treatments on the dynamic fatigue of soda-lime glass with indentation flaws G. Sorarù and R. Dal Maschio (Padua, Italy)	L25
AUTHOR INDEX	201
SUBJECT INDEX	203

© FLSEVIER SECURIA S.A. (1987)

0025-5416/87/\$3.50

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher, Elsevier Sequicis S.A. P.O. Box 851, 1001 Lausanne 1, Switzerland.

Submission of an article for publication implies the transfer of the copyright from the author(s) to the publisher and entails the author(s) irrevocable and exclusive authorization of the publisher to collect any sums or considerations for copying or reproduction payable by third parties.

Upon acceptance of an article by the journal, the author(s) will be asked to transfer copyright of the article to the publisher. This transfer will ensure the widest possible dissemination of information.

For Material Subject to U.S. Copyright Law

Special regulations for readers in the U.S.A.
This journal has been registered with the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, U.S.A. Consant is given for copying of articles for personal use, or for the personal use of specific clients. This consent is given not be condition that the copier pays through the Center the per-copy fee stated in the code on the first page of each article for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. If no code appears in an article, the author has not given broad consent to copy and permission to copy must be obtained directly from the author. All articles published prior to 1981 may be copied for a per-copy fee of U.S. \$2.50, also payable through the Center. This consent does not extend to other kinds of copying, such as for general distribution, reads, advantaing and promotion purposes or for creating new collective world. Special written permission must be obtained from the publisher for such copying.

MATERIALS SCIENCE AND ENGINEERING

VOL. 85 JANUARY 1987

CO	MIT	EN	ITC

EDITORIAL	v
VIEWPOINTS	
An outline of trends in materials science and processing	1
A two-parameter description of heterogeneous dislocation distributions in deformed metal crystals	15
Minimum weight design for stiffness in sandwich plates with rigid foam cores	33
The mechanism of a hydrogen-dislocation interaction in b.c.c. metals: embrittlement and dislocation motion. M. V. Rodríguez and P. J. Ficalora (Troy, NY, U.S.A.)	43
The effective fracture energy associated with cleavage crack growth in b.c.c. iron	53
A study of back stress during creep deformation of a superalloy Inconel 718 Y. Han and M. C. Chaturvedi (Winnipeg, Manitoba, Canada)	59
Effect of grain size on the high cycle fatigue behaviour of polycrystalline copper	67
Spall studies on Ti-6Al-4V	77
Carbon and nitrogen effects on the elastic constants of a stainless steel at 4 K	85
Slow plastic flow properties of B2 Co-Fe-Al and Co-Fe-Al between 1100 and 1400 K J. D. Whittenberger (Cleveland, OH, U.S.A.)	91
Deformation during fatigue near surface indentations and pits in copper crystals	101
Analytical treatment of grain boundary sources for dislocations	115
The stability of lamellar γ - γ' structures	127
Sputter-deposited and ion-mixed Ni-Ti and Ni-Cr thin films	139
High resolution X-ray diffraction study of defect structures produced by high d.c. electric fields in silicon	
single crystals	147
Corrosion of Fe-Cr-Si-B metallic glass wires	157
Effects of pretreatments on the oxidation behavior of Ni-Co-Cr-Al-Y coatings	165
Surface analysis of light elements at metal surfaces using (p, γ) reactions	181
Phonons in graphite and LiC ₆	187
BOOK REVIEWS	191
CONFERENCE CALENDAR	193
LETTERS	
Electrical conductivity of antimony sulphoiodide	L1
The torsion behaviour of stir-cast Cu-11wt.%Sn alloy at room temperature	L5
Superficial characterization of NbSe ₂ single crystals: an Auger electron spectroscopy study	L9

